

Appl. No. 10/525,451
Amdt. Dated of May 26, 2008
Reply to Office action of January 29, 2008

REMARKS

Claims 1-34 are pending in the present application after amendments. Claims 1, 17, 23 and 29 have been amended to distinctively claim the invention. The amendments are supported by for example FIG.3. No new matter has been introduced.

Corrections to Claims 7-14

Claims 7 and 12 have been amended to include a period at the end of the line 3 as suggested by the Examiner.

Rejection to Claims 1-4, 7-9, 12-19, 22-25, 28-31 and 34-36 under 35 USC

102(b) as being anticipated by Huang et al. (US 6,067,292)

Claims 1-4, 7-9, 12-19, 22-25, 28-31 and 34-36 stand rejected under 35 USC 102(b) as being anticipated by Huang et al., US 6,067,292 (Huang et al). For the convenience of argument, the examiner's rejection to claim 1 is copied herein. Regarding claim 1, as shown in figures 1-23, Huang et al. disclose in a receiver of a communication system, a method for reducing

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noise in a transformed signal (col 1, lines 35-37), said transformed signal having a plurality of signal components, said method comprising the steps of: receiving a transformed signal by a detector of said communication system (603 and 604 in figure 6); processing said transformed signal (605 in figure 6, 2203 in figure 22); and reconstructing (606 and 607 in figure 6, 607, 606 in figure 22) a predetermined number of times, by a reconstructing module (606 and 607 in figure 6, 607, 606 in figure 22), one or more signal components of said plurality of signal components (see figure 22 and 23), said reconstructing being based upon said processing step (2203, 603, 604, 606 and 607 in figure 22) to thereby reduce noise (cancelling interference is interpreted to be reducing noise) in said transformed signal (col 8, lines 31-36).

Applicants respectfully traverse the rejections for the following reasons.

First, Huang et al. disclose a technique that demodulates a received pilot-plus-data CDMA signal comprising multipath components. The pilot signal associated with the strongest multipath component is reconstructed and cancelled from the received signal to mitigate multipath interference. It is to be noted that the purpose of the technique disclosed by Huang et al. is to reduce multipath interference, and that the multipath interference is reduced by reconstructing the pilot signal associated with the strongest multipath

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component and being cancelled from the received signal. This is completely different from the present invention as discussed below.

Second, the present invention aims at reducing the excessive noise instead of multipath interference. The Examiner's claim that cancelling interference is interpreted to be reducing noise is not supported by the common knowledge in the art; it is well known in the art that excessive noise is conceptually different from multipath interference.

Third, as claimed, in the present invention, the signal components typically refer to signals on different subcarriers which are **orthogonal** to each other; all of the signal components are decoded in order to do reconstruction. In contrast, Huang et al. decode **only the component (path)** associated with the largest path gain of the pilot signal for the pilot signal construction. In addition, in Huang et al., the multiple signal components refer to multipath signals which are **non-orthogonal** to each other.

Forth, as claimed, the present invention identifies one or more signal components having one or more smallest channel coefficients based upon a channel estimate of said plurality of signal components to undergo reconstruction. In contrast, Huang et al. use one **strongest** path of the pilot signal for reconstruction.

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Fifth, as claimed, the present invention **replaces** the received signal components with the reconstructed signal components. This is achievable easily since the signal components are **separated** on different subcarriers. In contrast, in Huang et al., the constructed strongest user's signal is **subtracted** from the received composite signals. The signal components are not separated / orthogonal unless doing decorrelation operations for all paths at risk of introducing strong interference.

Finally, as claimed, the reconstruction in the present invention is performed a **number of times** for a single signal component to improve performance. In contrast, in Huang et al., the signal construction is performed only once since the signal has been cancelled in the first time.

In summary, Claims 1-34 are not anticipated by Huang et al. Applicants respectfully request that the rejections to Claims 1-34 be withdrawn.

Rejection to Claims 5-6, 10-11, 20-21, 26-27 and 32-33 under 35 USC 103(a) as being unpatentable over Huang et al. (US 6,067,292) in view of Dabak et al. (US 2003/0002568)

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Claims 5-6, 10-11, 20-21, 26-27 and 32-33 stand rejected under 35 USC 103(a) as being unpatentable over Huang et al. (US 6,067,292) in view of Dabak et al. (US 2003/0002568). Briefly, the Examiner alleges that Dabak et al. disclose the soft and hard decision processing so that the combination of Huang et al. and Dabak et al. reaches all the claimed features. Applicants respectfully traverse the rejections for the following reasons.

As discussed above, Huang et al. fails to teach or suggest the present invention. Thus, even if Huang et al. and Dabak et al. are impermissibly combined, they fail to teach or suggest all claimed features in the rejected claims. Therefore, applicants respectfully submit that Claims 5-6, 10-11, 20-21, 26-27 and 32-33 be not unpatentable over Huang et al. in view of Dabak et al., and request that the rejections to Claims 5-6, 10-11, 20-21, 26-27 and 32-33 be withdrawn.

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Conclusion

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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